WHAT IS CLAIMED IS:

1. An isolated peptide selected from the group consisiting of:

Conotoxin-Af6: X_6GQDDS$X_1X_1X_1$DSQX_2VMX_2HGQRRERR^

Conotoxin-Bt1: GGX_1X_1VRX_1SAX_1TLHX_1LTX_5^

Conotoxin-Bt2: GGX_1X_1VRX_1SAX_1TLHX_1ITX_5^

Conotoxin-Bt3: DGX_1X_1VRX_1AAX_1TLNX_1LTX_5^

Conotoxin-Bt4: GYX_1DDRX_1IAX_1TVRX_1LX_1X_1A#

Conotoxin-Bt5: GGGX_1VRX_1SAX_1TLHX_1ITX_5^

Conotoxin-Bu1: NX_5X_1TX_3IX_1IVX_1ISRX_1LX_1X_1I#

Conotoxin-Bu2: NX_5X_1TX_3X_3NLX_1LVX_1ISRX_1LX_1X_1I#

Conotoxin-C1: SDX_1X_1LLRX_1DVX_1TVLX_1LX_1RN#

Conotoxin-C2: GDX_1X_1LLRX_1DVX_1TVLX_1LX_1RD#

Conotoxin-C3: SDX_1X_1LLRX_1DVX_1TVLX_1PX_1RN#

Conotoxin-C4: IX_1X_1GLIX_1DLX_1TARX_1RDS#

Conotoxin-C5: IX_1X_1GLIX_1DLX_1AARX_1RDS#

Conotoxin-C6: G$X_1X_5X_1$VGSIX_5X_1AVRQQX_1CIRNNNNRX_5X_4CX_5X_2^

Conotoxin-Di1: TITAX_1X_1AX_1RTSX_1RMSSM#

Conotoxin-Di2: X_6X_1TX_5T$X_5X_1X_1$VX_1RHTX_1RLKSM#

Conotoxin-Ep1: GGKDIVX_1TITX_1LX_1X_2I#

Conotoxin-Fi1: G$X_1X_1X_1$VAX_1MAAX_1IARX_1NQAN#

Conotoxin-Fi2: SX_3X_1QARX_1VQX_1AVNX_1LX_2X_1R#

Conotoxin-Fi2a: SX_3X_1QARX_1VQX_1AVNX_1LX_2X_1RGX_2X_2IIMLGVX_5R-DTRQF^

Conotoxin-Fi3: D X_3X_1DDRX_1IAX_1TVRX_1LX_1X_1I#

Conotoxin-Fi4: GNTAX_1X_1VRX_1AAX_1TLHX_1LSL^

Conotoxin-Fi5: GSISMGFX_1HRRX_1IAX_1LVRX_1LAX_1I#

Conotoxin-L1: G$X_1X_1X_1$VAX_1MAAX_1IARX_1NAAN#

Conotoxin-L2: G$X_2X_1X_1$DRX_1IVX_1TVRX_1LX_1X_1I#

Conotoxin-L3: G$X_1X_1X_1$VAX_2MAAX_1LTRX_1X_1AVX_2#

Conotoxin-P1: G$X_1X_1X_1$HSX_2X_3QX_1CLRX_1VRVNX_2VQQX_1C^

Conotoxin-P2: G$X_1X_1X_1$HSX_2X_3QX_1CLRX_1VRVNNVQQX_1C^

Conotoxin-P3: G$X_1X_1X_1$HSX_2X_3QX_1CLRX_1IRVNX_2VQQX_1C^

Conotoxin-P4: $GX_1AX_1HX_3AFQX_1CLRX_1INVNX_2VQQX_1C^$

Conotoxin-P5: $GLX_1X_1DIX_1FIX_1TIX_1X_1I\#$

Conotoxin-Sm1: $ITX_1TDIX_1LVMX_2LX_1X_1I\#$

wherein X_1 is Glu or γ-carboxyglutamic acid (Gla); X_2 is Lys, nor-Lys, N-methyl-Lys, N,N-dimethyl-Lys or N,N,N-trimethyl-Lys; X_3 is Tyr, mono-halo-Tyr, di-halo-Tyr, O-sulpho-Tyr, O-phospho-Tyr or nitro-Tyr; X_4 is Trp (D or L) or halo-Trp (D or L); X_5 is Pro or hydroxy-Pro; and X_6 is Gln or pyroglutamate.

2. A derivative of the peptide of claim 1, in which the Arg residues may be substituted by Lys, ornithine, homoargine, nor-Lys, N-methyl-Lys, N,N-dimethyl-Lys, N,N,N-trimethyl-Lys or any synthetic basic amino acid; the Lys residues may be substituted by Arg, ornithine, homoargine, nor-Lys, or any synthetic basic amino acid; the Tyr residues may be substituted with meta-Tyr, ortho-Tyr, nor-Tyr, mono-halo-Tyr, di-halo-Tyr, O-sulpho-Tyr, O-phospho-Tyr, nitro-Tyr or any synthetic hydroxy containing amino acid; the Ser residues may be substituted with Thr or any synthetic hydroxylated amino acid; the Thr residues may be substituted with Ser or any synthetic hydroxylated amino acid; the Phe residues may be substituted with any synthetic aromatic amino acid; the Trp residues may be substituted with Trp (D), neo-Trp, halo-Trp (D or L) or any aromatic synthetic amino acid; the Asn, Ser, Thr or Hyp residues may be glycosylated;. the Tyr residues may also be substituted with the 3-hydroxyl or 2-hydroxyl isomers (meta-Tyr or ortho-Tyr, respectively) and corresponding O-sulpho- and O-phospho-derivatives; the acidic amino acid residues may be substituted with any synthetic acidic amino acid; and the aliphatic amino acids may be substituted by synthetic derivatives bearing non-natural aliphatic branched or linear side chains C_nH_{2n+2} up to and including n=8.

3. An isolated nucleic acid encoding a conopeptide propeptide having an amino acid sequence set forth in Table 4.

4. The isolated nucleic acid of claim 3, wherein the nucleic acid comprises a nucleotide sequence set forth in Table 4.

5. An isolated conopeptide propeptide having an amino acid sequence set forth in Table 4.

6. A method for treating or preventing disorders in which the pathophysiology involves excessive excitation of nerve cells by excitatory amino acids or agonists of heterogenous ionotropic glutamate receptors or heterogenous G protein coupled glutamate receptors which comprises administering to a patient in need thereof a therapeutically effective amount of the peptide of claim 1 or a pharmaceutically acceptible salt thereof.

7. The method of claim 6, wherein said disorder is a neurologic disorder or a psychiatric disorder.

8. The method of claim 7, wherein said neurologic disorder is a seizure.

9. The method of claim 8, wherein said seizure is seizure is associated with epilepsy.

10. The method of claim 7, wherein said neurologic disorder is a neurotoxic injury associated with conditions of hypoxia, anoxia or ischemia.

11. The method of claim 10, wherein said neurotoxic injury is associated with stroke, cerebrovascular accident, brain or spinal cord trauma, myocardial infarct, physical trauma, drownings, suffocation, perinatal asphyxia, or hypoglycemic events.

12. The method of claim 7, wherein said neurologic disorder is neurodegeneration.

13. The method of claim 12, wherein said neurodegeneration is associated with Alzheimer's disease, senile dementia, Amyotrophic Lateral Sclerosis, Multiple Sclerosis, Parkinson's disease, Huntington's disease, Down's Syndrome, Korsakoff's disease, schizophrenia, AIDS dementia from HIV infection, multi-infarct dementia, Binswanger dementia and neuronal damage associated with uncontrolled seizures.

14. The method of claim 13 wherein said treatment is for HIV infection.

15. The method of claim 7, wherein said neurologic disorder is pain.

16. The method of claim 15, wherein said pain is migraine, acute pain or persistent pain.

17. The method of claim 7, wherein said neurologic disorder is chemical toxicity.

18. The method of claim 17, wherein said chemical toxicity is addiction, morphine tolerance, opiate tolerance, opioid tolerance and barbiturate tolerance.

19. The method of claim 7, wherein said neurologic disorder is dystonia (movement disorder), urinary incontinence, muscle relaxation or sleep disorder.

20. The method of claim 19, wherein said disorder is urinary incontinence.

21. The method of claim 7, wherein said psychiatric disorder is anxiety, major depression, manic-depressive illness, obsessive-compulsive disorder, schizophrenia or mood disorder.

22. The method of claim 21, wherein said mood disorder is bipolar disorder, unipolar depression, dysthymia or seasonal effective disorder.

23. A method for treating memory or cognitive deficits, HIV infection, or ophthalmic indications which comprises administering to a patient in need thereof a therapeutically effective amount of the peptide of claim 1 or a pharmaceutically acceptible salt thereof.

24. A method for controlling nematodes or parasitic worms which comprises applying an effective amount of a peptide of claim 1 to the locus to be protected.